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The Post Cold War Civil Engineer Corps : what has changed and why

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WHAT HAS CHANGED AND WHY

by

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With the end of the Cold War the military services have experienced significant cuts in endstrength. Within the Navy, the Civil Engineer Corps (CEC) has also experienced some reductions. This thesis sought to determine how CEC endstrength is derived and whether it declined commensurate with overall naval officer endstrength. The command and billet structures for the CEC in 1986 and 1996 were used to represent the Cold War and Post Cold War respectively. The thesis determined how the CEC has changed and compared these changes to those that occurred in the larger naval officer community. One major finding is that CEC endstrength is indirectly affected by naval officer endstrength and directly affected by the size of the infrastructure. Downsizing the military without downsizing infrastructure results in minor reductions in CEC endstrength. The CEC has experienced a 17 percent reduction in endstrength over the period, with more than 50 percent attributed to the closure of commands. Another finding is that these reductions have not changed the missions of the CEC, construction contract management, facilities maintenance, and advanced base construction.

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THE POST COLD WAR CIVIL ENGINEER CORPS: WHAT HAS CHANGED AND WHY

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ABSTRACT

With the end of the Cold War the military services have experienced significant cuts in endstrength. Within the Navy, the Civil Engineer Corps (CEC) has also experienced some reductions. This thesis sought to determine how CEC endstrength is derived and whether it declined commensurate with overall naval officer endstrength. The command and billet structures for the CEC in 1986 and 1996 were used to represent the Cold War and Post Cold War respectively. The thesis determined how the CEC has changed and compared these changes to those that occurred in the larger naval officer community. One major finding is that CEC endstrength is indirectly affected by naval officer endstrength and directly affected by the size of the infrastructure. Downsizing the military without downsizing infrastructure results in minor reductions in CEC endstrength. The CEC has experienced a 17 percent reduction in endstrength over the period, with more than 50 percent attributed to the closure of commands. Another finding is that these reductions have not changed the missions of the CEC, construction contract management, facilities maintenance, and advanced base construction.

TABLE OF CONTENTS

LIST OF FIGURES

I. INTRODUCTION

A. PURPOSE

The purpose of this research paper is to investigate the effect of downsizing due to the fall of the Soviet Union and the resulting smaller force structure on the Civil Engineer Corps (CEC). This will be accomplished by looking at CEC endstrength as it compares to DoN endstrength, followed by an in depth look at the CEC to identify where cuts have been made. Additionally, an assessment will be made as to the rationale for reduction in the different functional areas of the CEC that make up the overall cuts.

B. BACKGROUND

Until the late 1980's, the United States military was sized and structured to fight the Cold War against a known adversary, the Soviet Union. U.S. military policy depended upon technological advances and a large standing force structure. The emphasis was on deterrence, failing which, U.S. strategy was to prevail through the application of conventional weapons. During this period the military grew in size, particularly while President Reagan was in office. This growth peaked in the mid to late 1980's.

It is about this time that Communism faltered and the Cold War came to an end. In response, the U.S. military has faced uncertainty regarding its purpose, and hence its size and structure. Significant cuts in endstrength have been taken during this period.

The entire DoD has felt this wave of shrinkage and the CEC is no different. It is not unreasonable to assume that reduced forces allow for a reduction in CEC billets, on the

assumption that there is a direct correlation between the size of the overall U.S. defense force and the size of the CEC. But this may not be the best approach. Should the CEC size and structure be related directly to personnel endstrength of the entire Navy or should it be connected to infrastructure? And what of the increase in the number of operations other than war (OOTW), base closures and increased scrutiny of environmental policies and contracting requirements? Are these not also determinants of the appropriate size and structure of the CEC? The Quadrennial Defense Review of 1997 has requested further base closures, illustrating that the infrastructure is too large. Until infrastructure is reduced, this larger infrastructure may require a CEC that is larger than may be expected to manage it. It is unclear how this is managed currently, but it raises important issues affecting the size and structure of the CEC.

C. RESEARCH QUESTIONS

1. Primary Research Question

How has the end of the Cold War and the subsequent downsizing of the military affected the CEC size and structure?

2. Secondary Research Questions

a. How has the end of the Cold War affected the mission of the CEC?
b. How are the size and structure of the CEC managed in relation to the mission?
c. Who is managing the cuts in CEC endstrength and how are the cuts being implemented?

d. Have the increased requirements for deployments to regional conflicts, joint staffing, base closures, and increased environmental awareness been considered in the changes to the CEC structure?

D. SCOPE

The scope of the research will be limited to the CEC billet structure from the end of the Cold War to the present. Changes in endstrength and structure will be analyzed to identify relationships to the changes in the Navy as a whole and the CEC mission specifically. The billet structures for 1986 and 1996 will be compared to identify the changes that have occurred in CEC size and structure.

E. METHODOLOGY

This research paper was accomplished predominately through the analysis of past personnel management studies and the authorized billet structure for the years of 1986 and 1996. Initially a count of the different types of commands was made, followed by a billet count in each functional area. The results of the two representative years were then compared to determine where changes have occurred. Interviews were then conducted with the CEC billet manager at the Bureau of Naval Personnel. He is responsible for managing the billet structure for the CEC and ensuring that the appropriate number of developmental billets are maintained. This is critical given the fact that over 50 percent of the CEC billets are actually programmed from Major Claimants other than the Naval Facilities Engineering Command (NAVFAC).

F. ORGANIZATION

Chapter II will take a look at the establishment of the CEC and why it was created. Core competencies of the CEC will be reviewed, from the time of the creation of the CEC to the present. The different functional areas of the CEC will be presented and how each of these areas is staffed will be determined.

Chapter III will discuss the size and structure of the CEC during the Cold War. Each functional area of the CEC will be reviewed to determine where the focus was at the time.

Chapter IV will discuss the post Cold War CEC size and structure as it relates to the current mission. Once again each functional area will be broken out to determine if the focus has changed.

Chapter V will illustrate the changes in the CEC between 1986 and 1996. Each functional area will be compared to determine where and why the CEC has downsized and the apparent logic for these changes. The analysis will also determine how the CEC downsizing compares to the Navy as a whole over the same period.

Chapter VI will summarize the findings of prior chapters, answer the research questions, and present recommendations for further research.

G. BENEFITS OF STUDY

This research paper will provide a clear and concise depiction of the factors which have shaped the changes in the CEC since the end of the Cold War. It will suggest which factors are the most significant and indicate why. This will enable the CEC to illustrate the methodology used in implementing changes to the endstrength for the CEC when the force structure of the entire military is changing. It

will prove useful as the DoN and the DoD continue to shape the force to respond to changes in the post Cold War security environment.

II. WHY A CEC

A. INTRODUCTION

This chapter will document the creation of the CEC, the core competencies that make the CEC an integral part of the Navy, and define the functional areas making up the CEC that will be used throughout the remainder of this paper. This discussion establishes the requirement for the CEC, with the remainder of the paper addressing the size and structure for the post Cold War drawdown.

B. CREATION OF THE CEC

1. The Beginning

The CEC as an entity formally recognizes its creation on 2 March, 1867. At this time it was determined by Congress that Civil Engineers of the Navy were to be appointed by the President. But this is not actually when the CEC staff corps came to be, nor were these the first engineers to work within the Navy Department.

Sixty-three years earlier the first "Engineer of the Navy Department" was designated by President Jefferson. Benjamin Henry Latrobe was selected to design and plan for construction dry-docks that would house the fleet of twelve frigates. He also began the Naval Shore Establishment by designing Navy facilities in Washington, New York and Norfolk. Thus began the first use of a Naval Engineer in the planning and design of facilities. (Ref. 1)

Congress delayed until 1826 the construction of the dry-docks. Loammi Baldwin was selected to oversee these projects by the Navy and to be the "Superintendent of dry-

docks and inspector of Navy Yards". He in turn selected two "resident engineers" to be his representative at each of the dry-dock construction sites in Boston and Norfolk. This began the construction management responsibility of the Navy engineers. To this day civilian engineers in contracting offices are titled "Resident Engineer in Charge of Construction" while CEC officers in these billets are titled "Resident Officer in Charge of Construction". (Ref. 1)

In 1842 the bureau system was established by Congress and the Bureau of Yards and Docks, the precursor to the Naval Facilities Engineering Command (NAVFAC), was created. This office was responsible for the oversight of all facilities in the Navy. (Ref. 1)

In 1881 the President conferred "relative rank" on the CEC and authorized the wearing of the regulation staff officer uniform. These two steps marked the creation of an actual staff corps within the Navy. Until this time all engineers in the Navy were civilians. (Ref. 2)

After the Spanish-American War the Navy expanded its base structure rapidly, including establishing bases overseas in many of its new territories. In response, Congress directed the CEC to be responsible for all Navy public works in 1911. This placed the requirement on the CEC to become proficient in the area of facilities management. This expansion also drove an increase in CEC officers. In 1898 there were ten officers, but at the conclusion of World War I there were approximately 150. Some of these increases were due to the war, but many were required to manage the numerous bases that had been built both overseas and at home. (Ref. 2)

World War II brought an opportunity for the CEC to grow in its contribution to the Navy. Until this time the engineers of the Navy were responsible for building and managing facilities during times of peace. Little

consideration for the CEC contributing to the war effort had been made. World War II changed this perception. CEC innovations for the war were instrumental in the allies' success.

Two of these developments were the sectional floating dry-dock and the Navy pontoon. The sectional floating dry-dock could be disassembled and transported to forward locations for repair of ships on station, without having to make the long transoceanic trip. The Navy pontoon was a system of steel boxes that could be tied together to create piers, barges, and bridges. The most important of its uses though was to create a ship-to-shore causeway that allowed amphibious landings over shallow beaches such as Sicily and Normandy. (Ref. 2)

As revolutionary as these innovations were for the times, the most critical did not occur until 1942. In January of that year RADM Ben Moreell, Chief of the Bureau of Yards and Docks, received authority to begin recruiting the first Naval units in U.S. history to specifically perform construction in overseas combat zones. (Ref. 2)

2. The Seabees

It became apparent early in the war that civilian contractors could not be counted on in combat zones. A civilian defending himself under military law was considered a guerrilla and was subject to summary execution if captured. RADM Moreell saw the need for a construction unit capable of building advanced bases, and they had to be military personnel. In 1942 he began to recruit the first Naval Construction Battalion (CB), or Seabees as they were soon labeled. This unit was to be led by the engineers of the Navy, the CEC, creating the third major responsibility of the Corps. (Ref. 2)

Experienced construction men were recruited, averaging 35 years in age, and placed in the Seabee units. They received little training in Navy customs and traditions and were the most unlikely-looking sailors ever introduced to the Navy. They were brought to service to do one thing, provide construction capabilities, and they did it well. In a span of only three years, the Seabees constructed over 400 advanced bases in the Atlantic and Pacific theaters. GEN Douglas MacArthur once stated "The only trouble with Seabees was that there weren't enough of them." (Ref. 2)

The Seabees continued this tradition of hard work through Korea, Vietnam and Desert Shield/Storm. But the Seabees have accomplished far more than contingency construction; they have responded in times of peace. Seabees have built bases around the world, including Marine Corps Air Station Futenma on Okinawa, a floating dry-dock for the Polaris Submarine Facility in Holy Lock, McMurdo Station in the Antarctica, Cubi Point Naval Air Station in the Philippines, and the Naval Station on Diego Garcia. (Ref. 2)

The Seabees have supported the civilian populace as well. The Seabees responded when Guam and Hawaii were hit by typhoons and when South Carolina, Florida, Mississippi, and Puerto Rico were devastated by hurricanes. Seabees arrived only hours after the 1964 earthquake and tsunami leveled the coast of Alaska and immediately following the 1987 earthquake in the Bay Area of California. Both Active and Reserve Seabees have been seen across the country fighting forest fires in National Parks and in communities fighting the onslaught of rising waters of floods. (Ref. 3)

3. Today and Tomorrow

Over the almost 200 years since the establishment of the Navy Department much has changed. There has been a transition from sail to steam and from wood to steel. The Navy has gone from a blue water force to an amphibious force and back and forth again. But one thing stays constant throughout history. When the war is won, ships must have a base to return home to. And as long as there is a Navy, there will be bases, and someone will have to be responsible for building and maintaining them. Since 1804 the Navy Engineer undertook this task, and in 1867 this group became recognized as the CEC. The three primary functions of construction management, facilities management and contingency construction fluctuate in staffing levels as the needs change. These needs, in turn, are a function of the roles and missions assigned to the CEC at a specific point in time, which are derived from the strategy of the U.S. military in general.

C. CORE COMPETENCIES

1. Introduction

To be successful in the CEC and capable of fulfilling the needs of the Navy in the functional areas of construction management, facilities management and contingency construction, the CEC officer must have a set of competencies pertinent to this end. The CEC is comprised of a triad of Naval Officer, Engineer/Technical Professional, and Acquisition/Business Professional. A different mix of competencies is necessary to be successful in each functional area and each of the three competencies requires a separate set of credentials. (Ref. 4)

2. Naval Officer

a. Skills

The most obvious need for Naval Civil Engineers to also be officers lies in the fact that they will be in "harm's way" in the leadership of contingency construction operations. A civilian would be unable to lead a unit of the Naval Construction Force (NCF) into a combat zone.

A less visible aspect of this competency is the fact that the core values of the Navy are brought to bear on the ethical dilemmas faced in construction contract management. The federal government confronts this issue in all aspects of contracting. The fact that the CEC are officers brings an expectation that decisions will be made in the best interest of the country and not the individual. (Ref. 4)

b. Credentials

The credentials of the naval officer consist of the commission and warfare qualifications. Officers for the CEC are commissioned from the Naval Academy, college ROTC programs, and transfers from the line community. Eligibility to become commissioned in the CEC requires a baccalaureate degree from an accredited university in engineering or architecture. Earning the warfare qualification for the Seabee Combat Warfare Specialist (SCWS) designation requires a tour with a Seabee unit and demonstration of leadership and knowledge commensurate with leading a unit in contingency construction operations. (Ref. 4) Figure 1 illustrates the attainment of this designation in the CEC as of 30 September 1996. (Ref. 5)

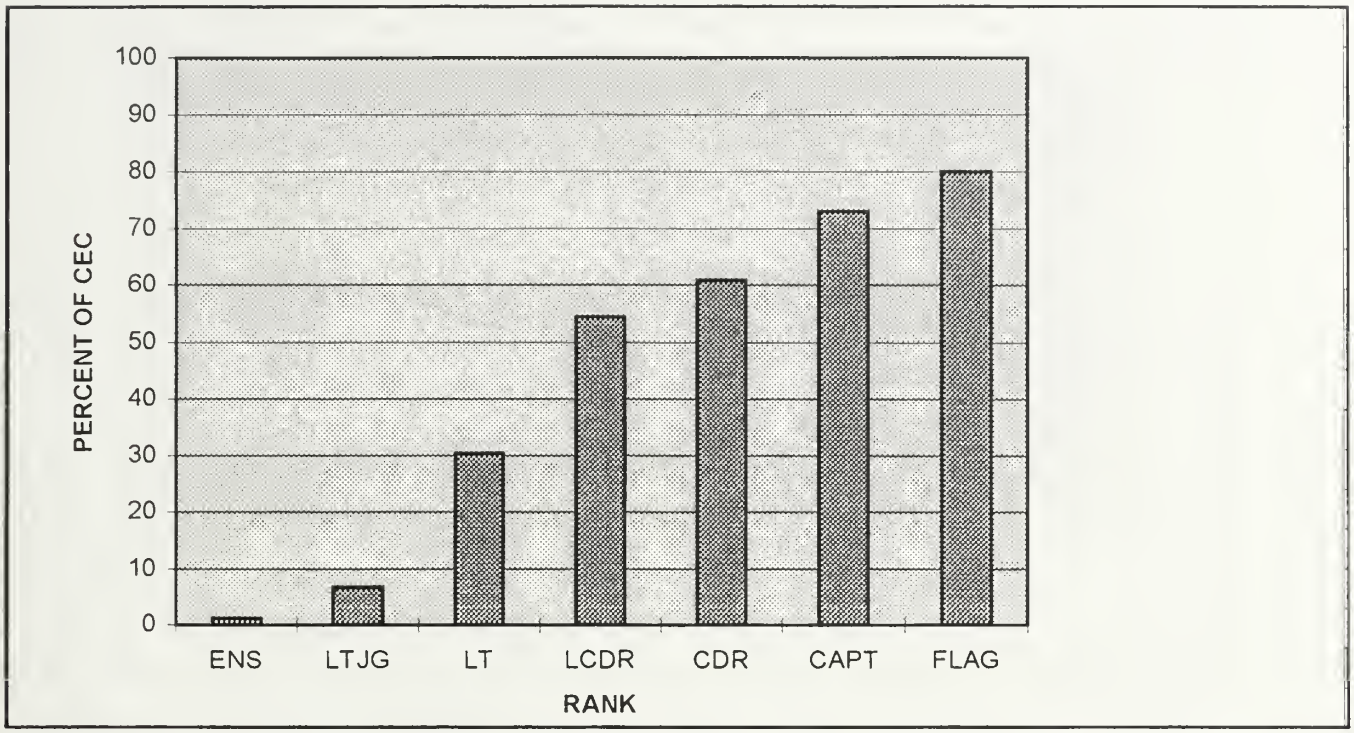

Figure 1: SCWS ATTAINMENT IN THE CEC, 1996 (Ref. 5)

3. Engineer/Technical Professional

a. Skills

All facets of the CEC require an ability as an Engineer/Technical Professional. This is easily the most visible of the three necessary competencies. The CEC manages construction and maintenance of facilities and an understanding of their design and function is critical to successful completion of this mission. In construction management the CEC officer oversees the building of facilities by civilian contractors. In facilities maintenance a comprehensive understanding of facility and component operations is critical to the maintenance and planned replacement to be accomplished. And in contingency construction the officer becomes the project manager for

work crews to plan and execute the construction of facilities, after which maintaining them becomes his responsibility. (Ref. 4)

b. Credentials

The credentials carried by the CEC officer that reflect the competence in this area include the degrees held and professional registration.

(1) Education. To be commissioned into the CEC requires a BS in an engineering discipline or a BA in architecture. But the CEC officer cannot stop there, as many of the senior billets require subspecialty codes, attained through graduate degree programs. CEC officers hold MS degrees in each of the engineering disciplines, construction management, financial management and operations analysis. This compares favorably to the civilian sector of engineers, who are also required to hold graduate degrees to work at a similar level of facilities and construction management. (Ref. 4) Figure 2 shows the attainment of graduate degrees, with the associated subspecialty code, and the percentage of billets requiring subspecialty codes at each rank as of 30 September 1996. (Ref. 5)

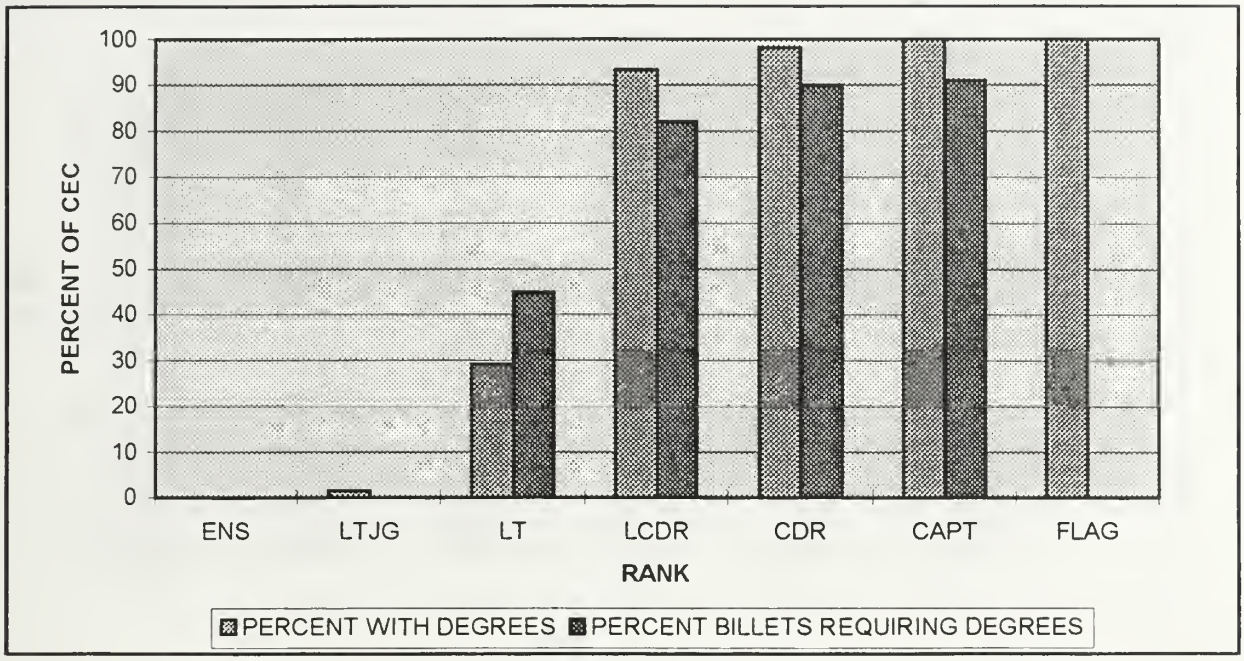

Figure 2: GRADUATE DEGREES IN THE CEC, 1996 (Ref. 5)

(2) Registration. The other credential--professional registration--may be achieved in one of three ways. Upon graduation from an accredited BS program in engineering, an individual may apply to test to become an Engineer in Training (EIT). Once completing four years of documented engineer work and attainment of the EIT designation, an individual may test to become a Professional Engineer (PE). For architects, a very similar process allows them to become a Registered Architect (RA). These levels of registration are identical to those held by civilian engineers. This registration is critical to maintaining the professionalism of the CEC community. (Ref. 4) Figure 3 shows the attainment of these registrations as of 30 September 1996. (Ref. 5)

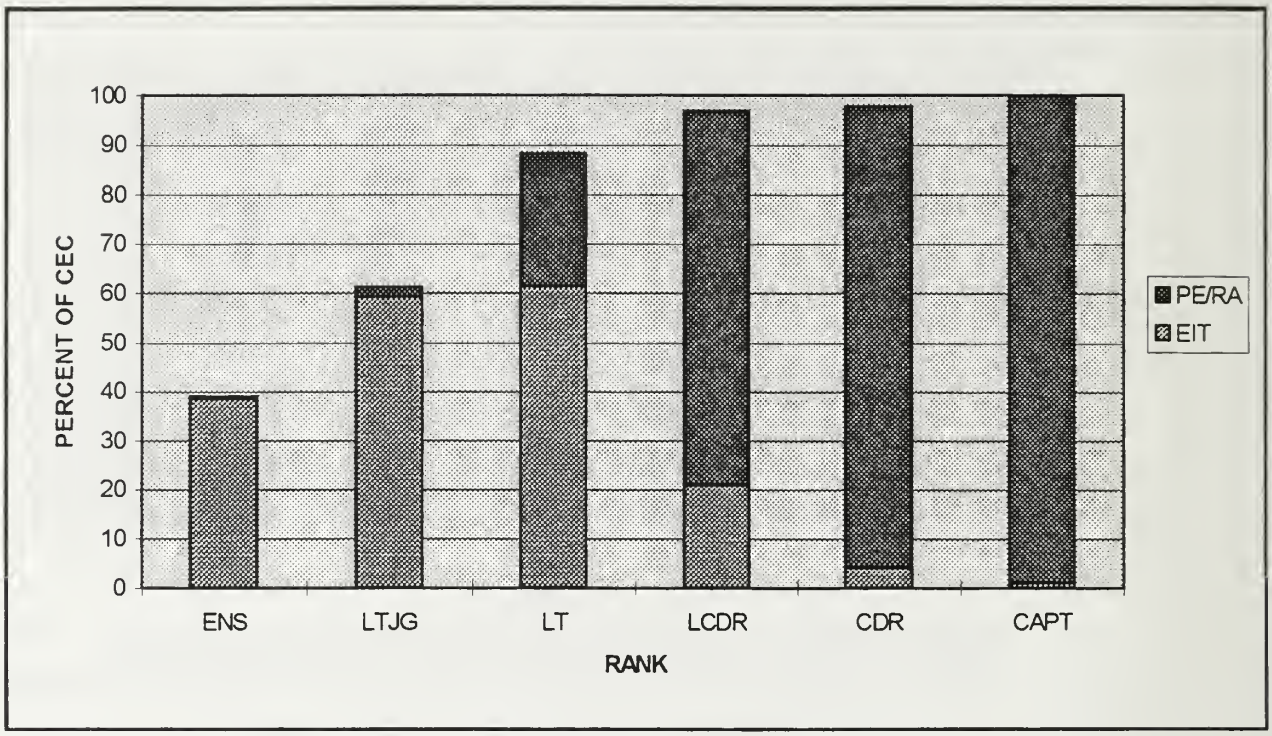

Figure 3: REGISTRATION ATTAINED BY CEC, 1996 (Ref. 5)

4. Acquisition/Business Professional

a. Skills

While the CEC officer is predominately an engineer by trade, it has become increasingly necessary that a competence in acquisition and business be acquired. Not only is the CEC responsible for the technical aspects of construction management, but also for the contract planning, formation, and administration associated with it. And not only does the CEC officer maintain facilities, he must lead a Public Works Office similar to those which support cities and towns. Understanding how facilities and their components work is only one aspect of what is needed. Being a business strategist and a long range planner is also necessary to succeed in the CEC. An aptitude for balancing

and best utilizing resources such as funding and personnel is critical. (Ref. 4)

b. Credentials

Credentials for this competency come in the form of acquisition certification and membership in the Acquisition Professional Community (APC).

(1) Certification. Acquisition certification comes in three levels based on the completion of required courses and number of years in acquisition billets. Each level attained carries with it a responsibility and an ability to accomplish specific types of contracting actions. (Ref. 4)

(2) Acquisition Professional Community (APC). The APC is a group of individuals, selected annually by a formal board, who meet very specific criteria of training and experience. This select group makes up the Navy's Acquisition Workforce and the individuals fill acquisition critical billets. Failure to be a member of the APC excludes individuals from filling these critical billets, and limits their ability to function in a large area of the CEC. The criteria that must be met are:

a. Lieutenant Commander/GS-13 level or above,
b. Accredited baccalaureate degree,
c. 24 semester credit hours in career field and 12 semester credit hours in business,
d. at least four years of federal government acquisition experience,
e. At minimum meet the training requirements for a Level II acquisition certification.

These very strict requirements are intended to ensure that the acquisition community is capable of completing its mission. (Ref. 6) Figure 4 shows the membership in the APC for the eligible ranks as of 30 September 1996. (Ref. 5)

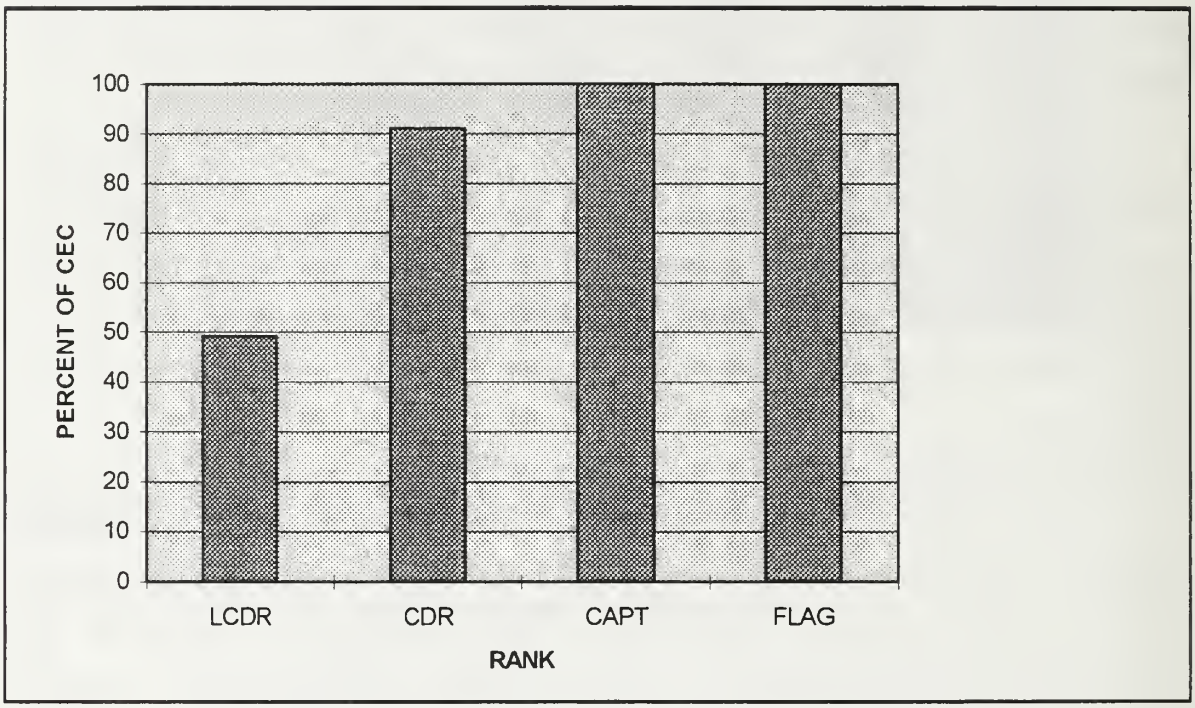

Figure 4: APC MEMBERSHIP IN THE CEC, 1996 (Ref. 5)

5. Conclusions

The triad on which the core competencies are built is critical to the accomplishment of the mission of the CEC. Failure to attain an ability in any one of the three areas results in a less than adequate officer. The leadership of the Naval Officer, the technical expertise of the engineer, and the acquisition expertise of the APC member make the CEC a unique and essential part of the Navy.

D. FUNCTIONAL AREAS

1. Introduction

The remainder of this paper will address certain changes in the CEC from 1986 to 1996. To do this it is necessary to break the CEC into components that may be compared and analyzed. The requirements of construction management, facilities management, and contingency construction are the primary components for analysis. These general areas are then compared to the billet structure for the CEC to determine how that structure could be examined in terms of its representation of the components. Four primary functional areas and one residual emerged from this process: contracting, public works, Naval Construction Force (NCF), staff, and others.

2. Contracting

a. Definition

Contracting commands were those within the NAVFAC claimancy that perform contracting functions from award to warranty close out or commands that support this function directly. The billets in contracting are budgeted for directly by the NAVFAC claimancy and currently make up approximately 30 percent of the CEC. (Ref. 7) The size of an office is driven by criteria such as number of contracts, size of civilian staff, the amount and dispersion of workload, and the number and size of the customers. (Ref. 8)

b. Types of Commands and Billets

Commands and billets that fit into this area are commonly referred to as Engineering Field Divisions (EFD), Engineering Field Activities (EFA), Officer in Charge of Construction (OICC), and Contracting Offices.

3. Public Works

a. Definition

Public works is a general term used to describe a unit that provides facilities management. These offices are responsible for the planning, budgeting, and execution of the real property maintenance program at a command. Services provided by a typical public works office include utilities system and facilities maintenance, transportation support, and environmental compliance. The billets for a public works are budgeted for by the major claimant to which they are assigned, with NAVFAC being the major claimant for the Public Works Centers (PWC). Staffing at public works commands is determined by the funding level for real property maintenance and the current plant replacement value of all facilities managed. (Ref. 8)

It is critical that the CEC manage the public works billets even though they are controlled by other claimancies. Currently public works constitutes almost 35 percent of all CEC billets and much of the junior developmental billets. (Ref. 7) At a time of downsizing within all claimancies, it is important that the CEC is represented strongly by the billet manager to ensure the CEC does not take an inordinate number of cuts in its junior billets, loss of which hinders the ability to develop well rounded senior officers.

b. Types of Commands and Billets

There were three major activities that fit into the category of public works. The Public Works Center (PWC) provides support to numerous bases in a fleet concentration area, such as that seen in Norfolk or San Diego. The Public Works Department (PWD) provides support to one base or large command, such as NSA Monterey Bay or Port Hueneme. The Staff Civil Engineer (SCE) provides support to a base or large customer that is typically serviced by a PWC, such as a hospital or a depot.

4. Naval Construction Force (NCF)

a. Definition

Commands in the NCF category were those units that provide contingency construction and maintenance to the Navy and Marine Corps. These units forward deploy in times of crisis and provide underwater, amphibious, and land based construction capabilities. Typical projects include construction and repair of airfields, roads, base camps, ammunition supply points, and piers. The entire NCF is budgeted for by the Commander in Chiefs of the Atlantic and Pacific Fleets. (Ref. 8) The NCF are the only truly operational units during times of crisis for the CEC. Currently the NCF makes up approximately 15 percent of the entire CEC billet structure. (Ref. 7)

b. Types of Commands and Billets

All units providing naval construction capabilities and support fit into this category. The list includes Brigades, Regiments, Battalions, and Units, as well

as the Underwater Construction Teams, and the Amphibious Construction Battalions.

5. Staff

a. Definition

All CEC billets assigned to support a staff fit into this category, such as CINCPACFLT and CINCLANTFLT. Currently this area makes up about ten percent of the CEC. (Ref. 7) Billets are budgeted for by the command being supported. (Ref. 8)

b. Types of Commands and Billets

NAVFAC is by far the largest command with its headquarters represented in this category. Other types of staffs to which CEC officers are assigned include those for other claimancies, joint staffs, the CNO staffs, and Secretaries of other Departments like the Secretary of Energy.

6. Other

a. Definition

This category was created to capture billets that did not fit into the others and had little impact on the outcome of this paper. Though this category made up about ten percent of the CEC, it was in six fractured pieces that accounted for no significant numbers individually. (Ref. 7)

b. Types of Commands and Billets

This area included accessions, separations, transients, students, instructors, and exchange billets.

This number tends to fluctuate with the season, e.g., during the summer the number of CEC accessions and students is high. Over the long term, however, this category is fairly consistent.

E. CONCLUSIONS

This chapter summarized the history of the CEC. The competencies that comprise the CEC have been identified and their roles within the Navy have been shown. Four distinct and important functional areas- contracting, public works, NCF, and staff, and a residual area (other) comprise the modern CEC. The remainder of the thesis will examine the changes in the size and structure of the CEC between 1986 and 1996, using these functional areas. This examination will identify the course the CEC has taken for the post Cold War downsizing.

III. THE COLD WAR CEC

A. INTRODUCTION

This chapter will examine the CEC of the Cold War, using 1986 as a representative year. The missions for the Navy and the CEC will be addressed to illustrate the environment that both were working in. This will be followed by an in-depth breakdown of the CEC into the functional areas of contracting, public works, NCF, staff, and others. The breakdown will be done both in the areas of number of commands and the number of billets.

B. THE MISSION

In 1986 the U.S. military found itself in an extended confrontation with the Warsaw Pact, known as the Cold War. Though no one was actually in combat, it could be viewed as a war of strength and technology. The Soviet Union, the leaders of the Warsaw Pact, had grown over time to become a formidable threat to the national security of the U.S. To combat this threat, the Navy provided a worldwide presence and had grown to almost 600 ships, over 7,000 aircraft, and a force of more than a million officers, enlisted personnel, and civilian employees. To support such a large inventory of equipment and numbers of personnel, the Navy found it necessary to operate and maintain a multi-billion dollar shore establishment. In this context, the CEC received a mission for both contingency operations for the NCF and a peacetime mission to manage this massive shore establishment. (Ref. 8)

Management of the Navy shore establishment is a "cradle to grave" process. CEC officers are involved from the

procurement of the real property; planning, programming, design, and construction of facilities; maintenance and repair of the facilities over their life; demolition of facilities; and disposal of real property. (Ref. 8) The goal of a 600 ship Navy by 1989 and an initiative for homeporting--spreading the fleet to numerous locations vice a few for security purposes--placed heavy emphasis on the CEC in the areas of constructing new facilities and maintaining a rapidly expanding shore establishment. (Ref. 9)

C. THE CEC

To accomplish the mission, the CEC had an endstrength of 1764 officers, 2.4 percent of the Navy officer endstrength. (Ref. 5, 10) To analyze this information it is necessary to present the functional areas in two ways, number of commands and number of billets. This will identify, when comparing to 1996, where cuts can be attributed.

1. Commands

The number of commands is indicative of the number of bases and units being supported and the volume of construction underway for the functional areas of contracting, public works, and the NCF. A contracting office is located to provide construction contracting capabilities to an area, while a public works office is located where facilities management is needed. The number of NCF commands is driven by CINCPACFLT and CINCLANTFLT. Changes in these command numbers would indicate an adjustment in the operational expectations of the CEC. Due to the areas of staff and others being equally represented

as both commands and billets, they will only be addressed as numbers of billets.

a. Contracting

In 1986 the functional area of contracting was distributed over six Engineering Field Divisions (EFD), ten Officer in Charge of Construction (OICC) offices, and 104 contracting offices of various sizes. (Ref. 11)

The EFD's were regionally placed to provide support to contracting offices. Locations included Washington, D.C., Philadelphia, Norfolk, Charleston, San Francisco, and Pearl Harbor. This was consistent with the large fleet concentration areas of the times and placed EFD's where they could most effectively support the contracting offices. (Ref. 11)

The OICC comes in two types. The first type is a group of construction contracting officers put together as a team for the construction of a specific large MILCON project. Examples underway in 1986 included Diego Garcia, Kings Bay, Naval Regional Medical Center San Diego, and the hospital at Travis Air Force Base. The second type of OICC works as an administrative support activity similar to an EFD. It is effectively a smaller version of an EFD and reports to an EFD. It is sited where there is a large amount of construction underway, like San Diego at the time, or is remotely located overseas, like Marianas Guam, the Philippines, mid-Pacific, the Far East in Yokosuka Japan, or the Mediterranean. These OICC offices provide the contracting offices with a much more immediate and local response than the EFD can. (Ref. 11)

There were 104 contracting offices worldwide in 1986. The offices ranged in size from a single officer at a

small command to ten or more officers supporting a large concentration area. (Ref. 11)

b. Public Works

As with contracting, there are three types of public works commands--Public Works Centers (PWC), Public Works Departments (PWD), and Staff Civil Engineer (SCE) offices.

The PWC are typically located where there is a large concentration of fleet activities. The idea is that a consolidated command can provide better support to more activities than many small PWD's. At the time PWC's could be found in nine locations around the world--Great Lakes, Norfolk, Pensacola, San Diego, San Francisco, Pearl Harbor, Yokosuka, Guam, and the Philippines. (Ref. 11)

A PWD is located at large commands and provides a full range of public works support for the command. Due to their size and responsibility, these offices usually have more than one CEC officer assigned, and for large commands often times have three to five. In 1986 there were 148 PWD's around the world. (Ref. 11)

The SCE, in contrast to the PWD, is typically a small office with just one CEC officer. The SCE is a liaison office with a PWC or large PWD and has little in-house capabilities. The support received for the command comes from outside, therefore a smaller office is sufficient. In 1986 there were 104 SCE offices located at large customer activities supported by a PWC or large PWD. (Ref. 11)

c. NCF

The NCF is under the operational control of CINCPACFLT and CINCLANTFLT. To support these two

operational commanders, the NCF maintains Pacific and Atlantic forces which mirror one another. This can be seen by the fact that there are two each of Brigades, Regiments, Amphibious Construction Battalions and Underwater Construction Teams, one assigned to the Atlantic and one to the Pacific. Anomalies to this logic are the nine Mobile Construction Battalions, four Pacific and five Atlantic, and the three Construction Battalion Centers, located in California, Mississippi, and Rhode Island. (Ref. 11)

2. Billets

The second way to segregate the CEC is to use a strict count of the number of billets in each functional area. Figure 5 illustrates the actual number of billets and the percentage for each functional area in 1986. The data indicate that more than half of the billets were devoted to contracting and public works, with a quarter going to the NCF and staff. (Ref. 11)

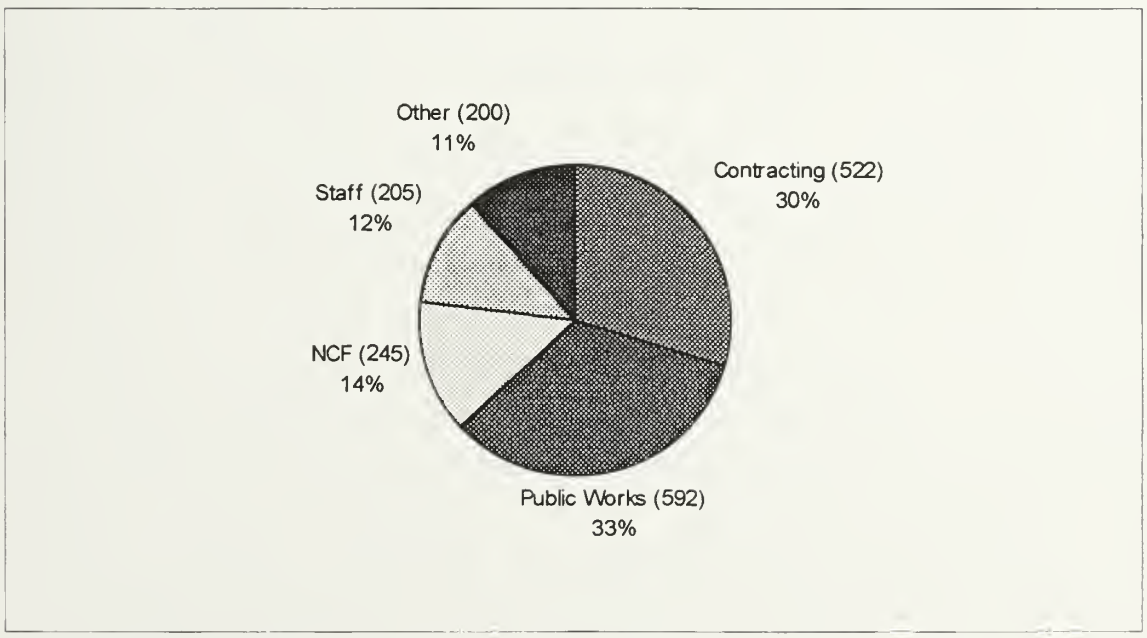

Figure 5: DISTRIBUTION OF CEC BILLETS, 1986 (Ref. 11)

D. CONCLUSIONS

This chapter has provided two breakdowns of the same information so that it may be easily compared with the CEC of 1996. The next chapter will accomplish this same breakdown of the 1996 CEC structure, followed by an analysis of how the CEC has changed over this period.

IV. THE POST COLD WAR CEC

A. INTRODUCTION

This chapter will examine the CEC of the post Cold War, using 1996 as a representative year. As in Chapter III, the mission of the Navy and the CEC will by addressed, followed by a breakdown of the CEC into the functional areas previously identified. This will permit an analysis between the two structures of the CEC for the represented years in the following chapter.

B. THE MISSION

The early 1990's brought significant change to the world, the nation, and the military. With the collapse of Communism and the falling of the Berlin Wall came a contraction and confusion regarding the mission of the U.S. military. Where there was once a single visible threat to defend against, there was now a series of unknowns as to potential adversaries. Without the familiar threat of the Warsaw Pact, the military lacked focus. The mission of sustaining two nearly simultaneous regional conflicts emerged. The endstrength of the military could not be justified on this mission, and it was forced to become smaller.

From a peak of 2,174,100 personnel in FY87, the military shrank to 1,471,700 personnel in FY96, a 32 percent cut. (Ref. 12) Savings were not only expected in personnel, but in infrastructure as well. The Base Realignment and Closure (BRAC) commission recommended consolidating and closing facilities in 1991, 1993, and 1995 in an attempt to save money. The construction related to relocating

functions has put increased demands on the CEC for contracting and disposing of bases to communities.

C. THE CEC

To accomplish its mission, the CEC had an endstrength of 1469 officers, 2.6 percent of the Navy officer endstrength. (Ref. 5, 10) As with the 1986 data, the 1996 data will be presented in the functional areas of contracting, public works, NCF, staff, and other, both for number of commands and number of billets.

1. Commands

The first broad based perspective on reductions is to look at the number of commands and how this has changed. Reduction in the number of commands can occur in only one of three ways: Closure of the base being supported, such as through the BRAC process; consolidation of the unit being supported with another unit already having a CEC command, such as when the Naval Aviation Depot consolidated to fewer locations; or consolidation of the CEC command itself with another CEC command, such as the case of numerous PWD's in Washington, D.C. combining to become a singular PWC. The number of commands present in contracting, public works, and NCF for 1996 will be broken down to establish the framework for comparison in the next chapter.

a. Contracting

In 1996 the functional area of contracting saw the creation of two new types of commands to go with the already present EFD, OICC, and contracting offices. The two new commands were the Engineering Field Activity (EFA), similar to the stateside administrative OICC in San Diego in 1986,

and the BRAC office, established to execute the final disposal of real property for a base closure. (Ref. 7)

At the EFD, EFA, and OICC level, the CEC realigned and continues to change its structure. In 1996 five EFD's were still in place at Philadelphia, Norfolk, Charleston, San Diego, and Pearl Harbor. Philadelphia, although still an EFD in name, reports through the Norfolk EFD and has become a smaller command. (Ref. 7)

By 1996 five EFA's had been created to support areas having large amounts of construction. The Washington, D.C. and San Francisco offices were scaled down from an EFD to an EFA. The OICC in the Mediterranean was switched in name to an EFA but continued to operate as it did in 1986. EFA offices were created at Great Lakes and Poulsbo, Washington to support the increased activity in these areas. Administrative OICC's remained in Yokosuka and Guam. The only construction contracting OICC in 1996 was located in Portsmouth, Virginia to build the new Naval Hospital. (Ref. 7)

Also created by 1996 were ten BRAC offices to support the closure of bases after the last tenants depart. Five of these offices were located in the San Francisco Bay Area, with the others located at Warminster, PA, Charleston, SC, Glenview, IL, Los Angeles, CA, and the U.S. territory of Guam. As an activity scales down, the CEC officer becomes one of the last military members on board and is responsible for disposing of the real property. The billet that remains is a hold over from the command whose billets have been lost and will go away upon completion of the mission of disposal. (Ref. 7)

The number of contracting offices remaining in 1996 was ninety. The function of these offices remained the same and their reduction is attributed to fewer commands to support. (Ref. 7)

b. Public Works

The function of the public works has not changed since 1986. There still remains three types of commands supporting this functional area--PWC, PWD, and SCE.

The number of PWC's increased to ten by 1996, but will soon be back to nine with the closure of the San Francisco PWC in the near future. Two new PWC's were opened in Jacksonville, FL and Washington, D.C., while the Philippines PWC closed. The remainder have not changed since 1986. (Ref. 7)

The number of PWD and SCE offices has gone down to 122 and 94 respectively since 1986. A few of these cuts can be attributed to consolidation with PWC's in Washington and Jacksonville, but most have been due to base closures and consolidation of commands being supported. (Ref. 7)

c. NCF

The NCF has changed the least in its command structure since 1986. Based on a continuing requirement to support two operational commanders, the CEC has retained two Brigades, Regiments, Amphibious Construction Battalions, and Underwater Construction Teams, one for each of the two commanders. The anomalies of 1986 have been changed through the closure of the Construction Battalion Center in Rhode Island, and the decommissioning of an Atlantic Mobile Construction Battalion. (Ref. 7)

2. Billets

Figure 6 illustrates the actual number of billets and the percentage for each functional area in 1996. The data indicate that more than half of the billets remain devoted to contracting and public works, with a quarter still going

to the NCF and staff. This illustrates only a slight shift in the distribution of billets and indicates no effort to move billets into any one functional area over another. (Ref. 7)

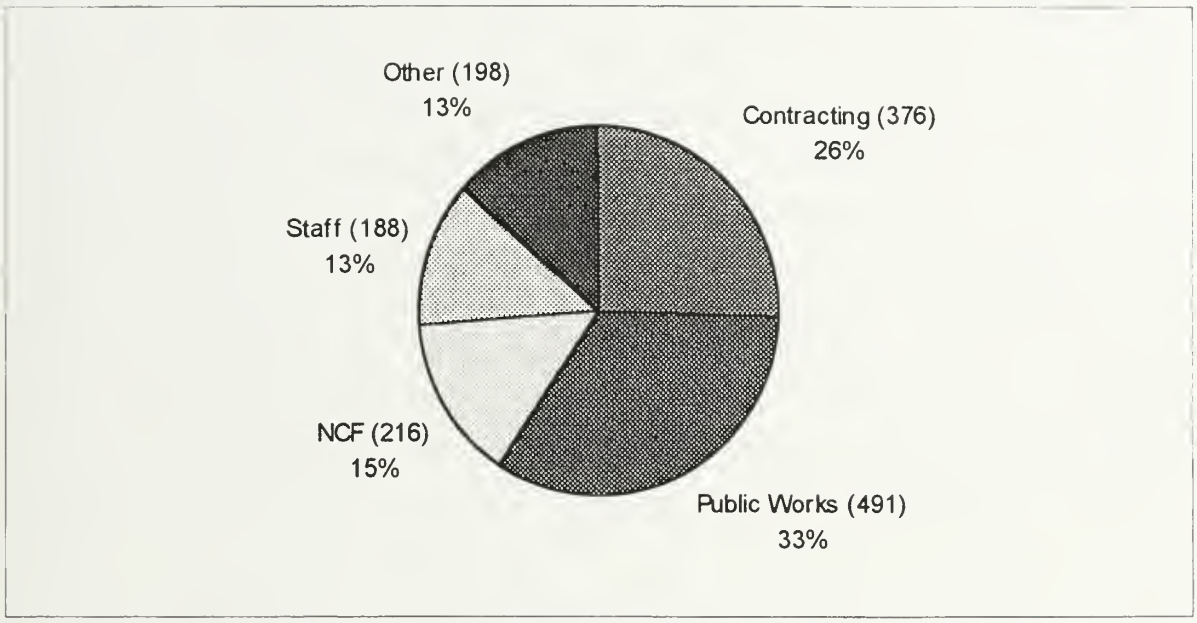

Figure 6: DISTRIBUTION OF CEC BILLETS, 1996 (Ref. 7)

D. CONCLUSIONS

This chapter has provided the same descriptive breakdown of the structure of the CEC in 1996 as was previously provided for 1986. The next chapter will analyze these two sets of data to determine where the changes have occurred and explain them.

V. AN ASSESSMENT OF CHANGE

A. INTRODUCTION

This chapter will use the information provided in the previous two chapters to illustrate how the CEC has implemented the reductions in endstrength. The CEC has gone from a force of 1,764 in 1986 to 1,469 in 1996. A determination of how the mission has changed, if at all, to allow this 17 percent reduction in CEC endstrength will be made. A comparison will then be conducted to determine how the CEC reductions compared to those taken by the entire Naval Officer community. A complete analysis will then follow to determine if cuts were realized by shrinking the command structure, the size of CEC commands, or a combination of the two.

B. THE MISSION

The actual mission of the Navy has changed little since the end of the Cold War, but the threats it must face to meet the mission have. The Navy is, as always, responsible for maintaining open sea lanes and projecting a forward presence. But the threat is no longer a singular, large adversary with an open water capability. The threat now comes from smaller adversaries that do not threaten the open seas as the Soviet Union did for years. To face this change the Navy has moved to a smaller force capable of not only providing a presence on the open seas, but able to provide amphibious and over the horizon support in coastal operations.

As a result of a smaller operational force, it has become necessary for support functions and activities to

also become smaller. To this end there has been a reduction in the number of bases through the BRAC process. Because it is a political process, the reduction in bases is not proportional to the cuts in operational forces. Section VIII of the Quadrennial Defense Review states that while the total military endstrength has been reduced 32 percent from 1989 to 1997, the result of all base closures will only reduce the infrastructure a total of 26 percent. (Ref. 13)

Through this change in Naval doctrine, the CEC has seen no real change in mission. Operationally, the CEC continues to provide advanced base construction during contingency operations for both CINCPACFLT and CINCLANTFLT, and in base support, the CEC provides the Navy with professional engineer capabilities in construction contracting and public works maintenance.

Operationally, a change in the way the Navy meets its mission could directly affect the NCF, but five of the six operational command types contain only one unit each in the Atlantic and Pacific. A cut in one of these commands would degrade the capability of one of the fleet commanders, and therefore would not be expected unless there were very large cuts being made in Naval capabilities.

In the area of support, a change in the way the Navy meets its mission can only indirectly affect the CEC size. In construction contracting and public works maintenance, the size of the fleet and the endstrength of the line community can only affect the CEC size through an associated change in infrastructure. In theory, fewer ships need fewer bases, hence a smaller CEC to build, operate, and maintain bases. But this fails to recognize the necessary intermediate step of base closures commensurate with platform reductions which, as noted above, has not yet occurred.

C. THE CEC AND THE NAVY

Figure 7 shows both the total number of naval officers and the total number of CEC officers for the years 1986 to 1998. (Ref. 5, 10) Note that the number of naval officers must be read from the left hand scale, while the number of CEC officers must be read from the right hand scale. The CEC make up less than three percent of the total naval officer community and representation on the same scale is impractical.

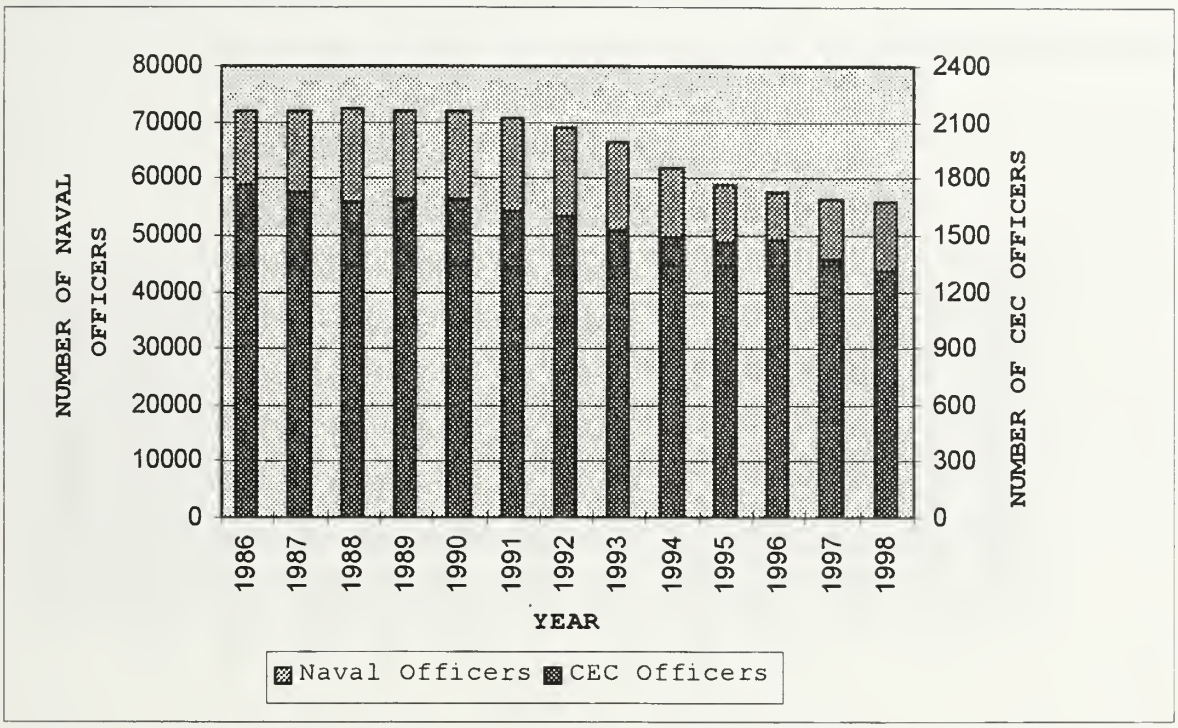

Figure 7: TOTAL NUMBER OF NAVAL AND CEC OFFICERS, 1986-1998 (Ref. 5,10)

Figure 7 illustrates that there have been definite cuts in endstrength for both the naval officer and CEC communities. While cuts have been made, a close look shows that the two have not moved downward together. This

disconnect is critical, as it illustrates that the CEC endstrength is not directly linked to the naval officer endstrength. The CEC endstrength may still be loosely connected to total naval officer endstrength, but it must be influenced by some other factor such as infrastructure as well.

Figure 8 depicts the CEC as a percent of the naval officer community for the years 1986 to 1998. (Ref. 5, 10) This once again illustrates that while the CEC may be loosely controlled by the total naval officer endstrength, only moving in a range of 2.3 to 2.6 percent, the CEC endstrength must be ultimately dictated by another factor.

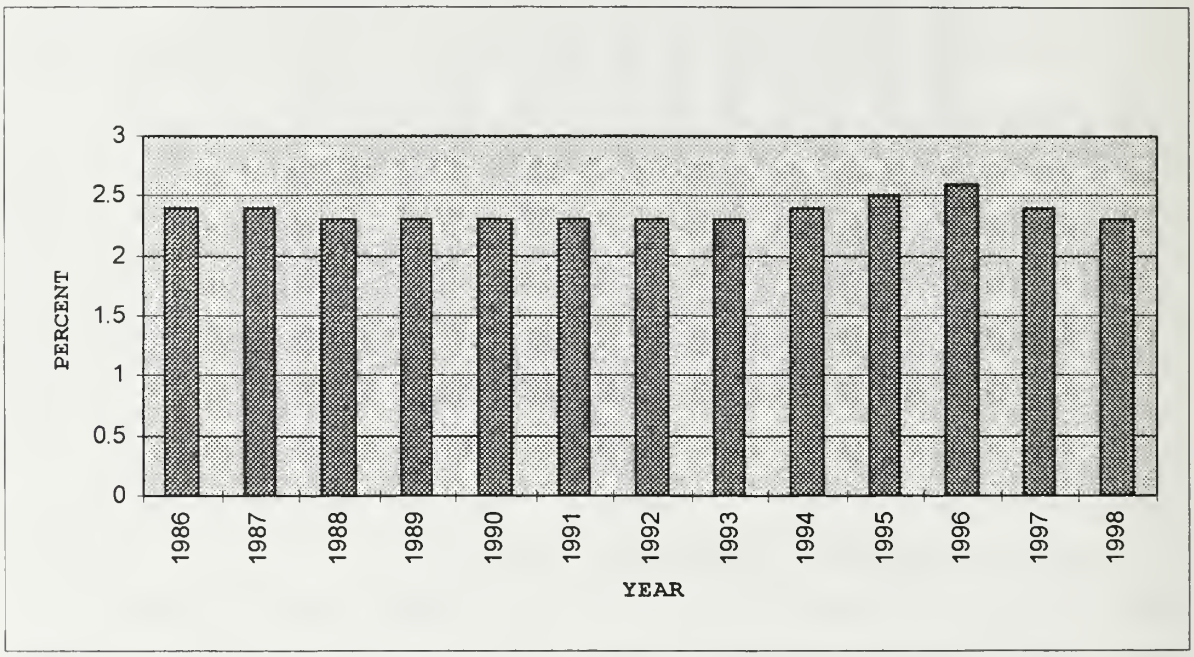

Figure 8: CEC AS A PERCENT OF THE TOTAL NAVAL OFFICER COMMUNITY, 1986-1998 (Ref. 5, 10)

To explain the movement over time it is necessary to recognize that two events are occurring simultaneously. The denominator is the naval officer endstrength and the numerator is the CEC endstrength. While both of these

communities have seen cutbacks, it is differences in the severity of the cutbacks that create the change in the percentage.

Between 1986 and 1988 there is a movement from 2.4 to 2.3 percent. Over this period it is seen that the navy officer community was still growing to meet the goal of a 600 ship Navy by 1989. On the other hand the CEC became slightly smaller as large projects like Kings Bay, GA and Diego Garcia were being completed. The cumulative effect of two small movements in opposite direction resulted in a lowering of the CEC as a percentage.

The CEC remained at 2.3 percent from 1988 to 1993, but there were events that must be noted as changes in CEC endstrength still occurred. Between 1988 and 1990 the CEC saw slight growth that can be attributed to the FY88 BRAC. However, the CEC change was too small to drive a change in the percentage. By 1991 the CEC was able to realize some of the cuts from completing the 1988 closures. Simultaneously, the naval officer community began the Post Cold War drawdown and once again the cumulative effect was a stable CEC to toal naval officer ratio. In 1992 and 1993 a similar pheneomenon of simultaneous CEC and naval officer downsizing occurred.

Although the drawdown for the Navy had hit its peak by 1994, the naval officer community took its largest cuts from 1994 to 1996. Over the same period the CEC was feeling the effects of an excessive number of base closures from a series of BRAC commissions for FY91, FY93, and FY95. This culminated in the CEC actually having a very slight growth in endstrength for 1996. The cumulative effect of the large cuts in the naval officer endstrength and modest to no cuts in CEC endstrength resulted in a growth to 2.6 percent for the CEC.

The CEC expects that naval officer endstrength will be slightly reduced in 1997 and 1998 and then level off for the future. (Ref. 5) On the other hand, the CEC itself is expected to begin realizing billet cuts from the base closures for the FY91, FY93, and FY95 BRAC processes. As would be expected a few years beyond the BRAC year bases begin closing and CEC billets are lost. The effect of the CEC experiencing their largest cuts while the naval officer community stabilizes results in the percentage of CEC officers moving back down to 2.3 percent.

While this information suggests that base closures are linked to the downsizing of the CEC, it is necessary to analyze the command and billet structures to support this hypothesis.

D. REDUCTIONS IN THE CEC

There are two ways to recognize cuts in the CEC. There can be a reduction in the number of commands through closure or consolidation, or there can be a reduction in the number of billets at a command. By comparing the number of commands and billets in the five functional areas of contracting, public works, NCF, staff, and other for 1986 and 1996, the methodology for implementing cuts can be determined. Figure 9 shows in table form the changes that have occurred in the number of commands from 1986 to 1996 for the functional areas of contracting, public works, and NCF. Commands and billets are very similar for the areas of staff and others and are not broken out separately. (Ref. 7, 11)

FUNCTIONAL AREA	COMMAND TYPE	1986	1996	CHANGE
CONTRACTING	EFD	6	5	(1)
	EFA	0	5	5
	CONTRACTING OFFICES	114	93	(21)
	BRAC OFFICES	0	10	10
PUBLIC WORKS	PWC	9	10	1
	PWD	148	122	(26)
	SCE	104	94	(10)
NCF	NCB	2	2	0
	NCR	2	2	0
	NMCB	9	8	(1)
	ACB	2	2	0
	UCT	2	2	0
	CBC	3	2	(1)
	CBU	22	20	(2)

Figure 9: NUMBER OF CEC COMMANDS WITHIN EACH FUNCTIONAL AREA FOR 1986 AND 1996 (Ref. 7, 11)

Figure 10 provides in table form the number of billets that existed in each functional area in 1986 and 1996. (Ref. 7, 11) This is broken down to illustrate the number of billets working within each type of command to see where the reduction in billets has occurred.

FUNCTIONAL AREA	COMMAND TYPE	1986 BILLETS	1996 BILLETS	CHANGE	PERCENT CHANGE
CONTRACTING	EFD/EFA	81	69	(12)	
	CONTRACTING OFFICES	441	289	(152)	
	BRAC OFFICES	0	18	18	
	TOTAL	**522**	**376**	**(146)**	**28%**
PUBLIC WORKS	PWC	111	109	(2)	
	PWD/SCE	481	382	(99)	
	TOTAL	**592**	**491**	**(101)**	**17%**
NCF	NCB	26	27	1	
	NCR	12	13	1	
	NMCB	126	120	(6)	
	ACB	16	16	0	
	UCT	6	6	0	
	CBC	14	11	(3)	
	CBU	22	20	(2)	
	CBMU	1	0	(1)	
	RESERVE STAFFS	22	3	(19)	
	TOTAL	**245**	**216**	**(29)**	**12%**
STAFF	NAVFAC HQ	50	40	(10)	
	NFESC/NCEL	14	15	1	
	USN STAFFS	104	91	(13)	
	USMC STAFFS	3	5	2	
	JOINT STAFFS	20	22	2	
	SECRETARIAT STAFFS	8	10	2	
	EXCHANGE BILLETS	6	5	(1)	
	TOTAL	**205**	**188**	**(17)**	**8%**
OTHER	**TOTAL**	**200**	**198**	**(2)**	**1%**
TOTAL CUTS		**1764**	**1469**	**(295)**	**17%**

Figure 10: NUMBER OF BILLETS WITHIN EACH TYPE OF COMMAND FOR 1986 AND 1996 (Ref. 7, 11)

The next section will use this command and billet breakdown to determine their relationship to the downsizing of the CEC.

E. DRIVING THE CHANGE

Using the data provided in Figures 9 and 10, each functional area will be analyzed to determine what factors influenced the downsizing. The goal will be to see if the cuts can be related to base closures and consolidations or if they were the result of an attempt to meet an artificial ceiling created by something other than the size of the infrastructure.

1. Contracting

The contracting area consists of two levels of commands. The administrative level is the overhead commands of EFD's and EFA's, while the working level consists of the contracting and BRAC offices. Because they have different functions, they appear to have lost billets through differing circumstances.

The EFD/EFA level had a reduction of 12 billets that can not be directly tied to office downsizing or command closure. At this level there was a definite reorganization that affected the endstrength, but it can not be directly explained. There was a reduction of one EFD and a creation of five EFA's. Simultaneously the average size of the EFD was reduced, but since there were no EFA's in 1986, their creation was a 100 percent increase in command size. The net reduction of 12 can not be directly tied to command closure or billet reduction at the command, and will therefore be explained as administrative reorganization.

The contracting offices are a different matter in that the 152 billet reduction can be explained by two distinct

factors. The number of contracting commands has been reduced by 21 and the average size of a contracting office went from 3.87 billets per office to 3.11 billets per office. Thus it is possible to attribute 81 (53 percent) of the billets to the reduction in the number of commands and 71 (47 percent) of the billets to the reduced number of billets in each office.

2. Public Works

Public works, like contracting, has two distinct levels of operation. The PWC is very large and supports a broad area. The PWD and SCE, on the other hand, are small and support a single base or command. This difference is reflected in the way cuts in billets are taken at each level.

The PWC appears to have grown in number from nine to ten and shrank in billets by two. However, a closer look shows the PWC in San Francisco is down to just five personnel and will be closing soon. Once this occurs, it will become apparent that the PWC's have really taken less than one billet cut per command on average, not grown to ten commands with fewer billets. Due to its size the PWC has been able to take a small reduction in billets without taking cuts in the number of commands.

Due to the size of PWD's and SCE offices, they must close commands to realize savings in the number of billets. The average number of billets per office in 1986 was 1.91, down to 1.77 in 1996. Having an average size of less than two billets requires command closure in most circumstances to reduce the number of billets. Of the 99 billets lost in this area 69 (70 percent) billets can be attributed to the closing of 36 offices while only 30 (30 percent) billets can be attributed to smaller offices.

3. NCF

In the NCF area there were 29 billets cut, 12 (41 percent) of which can be attributed to command closure. Between 1986 and 1996 one NMCB, one CBC, one CBMU, and two CBU's were decommissioned to realize savings in personnel. The remainder of the cuts were made through a reorganization of the reserve NCF and the number of active personnel necessary to support them.

4. Staff

The staff functional area is made up of two commands, NAVFAC Headquarters and Naval Facilities Engineering Support Center (NFESC), and numerous positions on the staffs of other commands. The NFESC had an increase of one billet while the NAVFAC HQ had a 10 (20 percent) billet cut. This was done strictly through reorganization and is considered a direct reduction in billets at the command.

During this period there was a reduction of billets on Naval Staffs while there was an increased representation of the CEC on Marine Corps, Joint, and Secretariat Staffs. It is likely that joint operations have become more prevalent and the need for CEC expertise is necessary in these staff areas. The reduction in the support to Navy staffs is not due to a reduction in CEC on a staff, as there are typically two or fewer CEC on a staff, but as a result of fewer staffs to support through consolidation. Since 1986 the Navy has attempted to reduce overhead throughout the organization, and to this end has consolidated many staffs.

5. Other

There has been a negligible change in the number of billets in this area. The makeup of this functional area

fluctuates with the season as students move in and out of schools, personnel PCS, and accessions and separations move in and out of the CEC. This category is the catch all to allow for these seasonal fluctuations to keep the actual number of personnel in the CEC under the authorized endstrength.

F. CONCLUSIONS

It is apparent that there is no direct link to the naval officer community dictating the size of the CEC. An analysis of the drawdown for both the CEC and the naval officer community does not show a congruence between the two. There may be an understanding that the CEC will not grow out of proportion to the group it supports. But at the same time, there does not appear to be an expectation that the CEC will be kept at a definitive level. It makes sense that the CEC should not grow disproportionatly, as its mission is a small part of the Navy, but it should also not be constrained arbitrarily.

A closer look within the CEC itself supports this disconnect from the entire naval officer community. The internal cuts have not been arbitrarily across the board, but can be partially explained by base closures. The Navy includes large commands, with over ten personnel, and small ones, featuring fewer than ten personnel. The CEC is made up of a few large commands (EFD's, PWC's, NAVFAC HQ) and hundreds of small commands (contracting offices, PWD's, SCE's, staff commands) having one to four personnel. It is generally believed that large commands can afford to lose a billet, and numerous large commands losing one billet add up to big cuts. The CEC has very few of these large commands and can not create large cuts by taking one billet from many commands.

Fifty-one percent of total CEC cuts over the ten year period resulted from command closures, and, arguably, another ten percent due to consolidation of Reserve and Navy staffs. Only thirty-nine percent of all cuts came from downsizing (as opposed to closing) commands. The NAVFAC HQ and the EFD's were able to make a few cuts, but the majority came from reducing the average size of the contracting offices and PWD's to 3.11 and 1.77 respectively. It would be extremely difficult to make these numbers any smaller.

It does not appear to be feasible for the CEC to reduce any further without additional infrastructure cuts. Over the next few years the CEC will continue to reduce endstrength as a result of the completion of past BRAC decisions. In the future, further cuts will also have to be associated with closures or CEC representation at commands will be forced to zero in many cases.

VI. CONCLUSIONS

A. SUMMARY

The Cold War has come to a close and significant cuts have been made to U.S. military forces. The unknown aspect of this drawdown has been the implementation of these cuts on small portions of the military structure, specifically the CEC.

This thesis has identified the command and billet structure for the CEC for 1986 and 1996. These two years are used to represent the Cold War and the transition to the Post Cold War. The data have provided some insight into the logic behind the cuts and indicated if there was a plan in implementation or an arbitrary methodology. Equally important, an illustration of how cuts in CEC endstrength were made during this period provides insight into the impact of future cuts. This analysis allows decision makers in DoD, DoN, and Congress to avoid arbitrary cuts by illustrating the link between the CEC endstrength and the size of the infrastructure.

B. RESEARCH QUESTIONS

1. How has the end of the Cold War and the subsequent downsizing of the military affected the CEC size and structure?

The end of the Cold War has presented the military as a whole and the CEC specifically with an opportunity to downsize. Through comparisons with the entire naval officer community, it is seen that the CEC has lagged in the drawdown. This is a positive aspect in that it illustrates that the CEC is not being arbitrarily constrained as a

percentage of the naval officer community, but is downsizing as a response to other, more objective factors. The analysis suggests that two factors have driven the reduction in the CEC size--a reduction in infrastructure and a general downsizing of large commands.

2. How has the end of the Cold War affected the mission of the CEC?

The CEC mission has changed little over its history. The CEC continues to be responsible for construction management, facilities maintenance, and advanced base construction. This was the mission prior to the Cold War, during the Cold War, and today. The changes that occur are not in the mission itself, but rather, a function of changes in the Navy's infrastructure within which this mission is pursued.

3. How are the size and structure of the CEC managed in relation to the mission?

As noted above, the mission is unchanged, but the infrastructure within which it is pursued has been downsized. This thesis demonstrates a linkage between the shrinking infrastructure and the CEC drawdown, not a linkage between a smaller naval officer endstrength and the CEC drawdown.

4. Who is managing the cuts in CEC endstrength and how are the cuts being implemented?

It has been determined that the CEC only controls and budgets for about one half of all the CEC billets. The remaining half are distributed among other major claimants in the Navy. It is the responsibility of the Billet Manager for the CEC to ensure that a proper mix of billets is maintained to allow growth of well rounded CEC officers. It appears that the CEC has proven itself capable and necessary to the Navy community it supports as cuts appear to be

logical extensions of base closures and consolidations and not arbitrary to meet some desired endstrength number.

5. Have the increased requirements for deployments to regional conflicts, joint staffing, base closure, and increased environmental awareness been considered in the changes to the CEC structure?

It is not possible to determine exactly what criteria were considered over the past ten years of cuts. It does appear though that cuts have been driven from the bottom up, and not directed from above. The cuts made have been in step with base closures and increases in billets to joint and Marine Corps staffs have been allowed. This illustrates the ability of the CEC to determine endstrength on needs and not arbitrary ceilings.

C. CONCLUSIONS

The data presented in command and billet structures show a CEC that has become smaller in both areas. The connection to the naval officer endstrength appears to be loose or indirect; the endstrength of the CEC is more closely tied to the size of the infrastructure. This connection is critical because an arbitrary connection to naval officer endstrength could easily drive the CEC to such a small size as to be unable to accomplish its mission.

It has also been shown that the CEC has cut the size of some offices to accomplish the reduction. These small cuts have now reduced the size of many commands to a point of being unable to remove any further personnel without actually closing the office. As the military experiences cuts in the future, it must reduce infrastructure first to realize any further savings in personnel within the CEC.

D. RECOMMENDATIONS FOR FURTHER RESEARCH

1. A study needs to be done to determine if CEC billets within contracting offices were replaced by civilians.

Contracting offices are staffed with both military and civilian personnel. The junior contract administration billets can be filled by either a civilian or an officer. This thesis has shown that about one half of the cuts in contracting offices came from closures, with the other half the result of downsizing the offices. This thesis focused on the CEC, hence it did not detect changes in civilian jobs at these commands. The question that is raised is whether or not the reduction in CEC billets resulted in actual savings, or a shift to civilian jobs.

2. A study should be performed to determine the consequences to the CEC of outsourcing functions.

This thesis has shown that PWD's have an average size of 1.77 billets. Would the outsourcing of this function cause these billets to go away, or would they become administrators of the outsourced contract? There is no doubt that it would affect civilian jobs, but what would be the impact to the CEC?

3. A study should be completed to identify if a similar pattern of reductions has occurred to both the CEC and civilians in NAVFAC as a result of base closures.

This thesis viewed only the CEC billets as they pertained to the drawdown. The next logical step would be to look at the CEC and civilians within the organization. The functional areas of NCF and other are almost exclusively CEC, but the areas of contracting, public works, and staff are heavily influenced by the number of civilians. In these functional areas a study needs to be accomplished to determine if the cutbacks to the organization as a whole are

moving with the base closures as the CEC endstrength does, or if one group is being reduced out of balance with the other.

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